

1. CLAIMS

A system allowing a user terminal in a network to simultaneously access a plurality of radio based access networks (19, 20) of diverse access technologies, said radio based access networks being adapted for connection to a common backbone network (21), **characterized by** access selection adapters (22, 23), each one associated with a respective radio based access network, for receiving access dependent information from its respective access network and for mapping said information on access technology independent status information, an access selector (26) interacting with applications (27) resident in a user terminal (18) and with each access adapter for selection of a radio access network based on an individual QoS profile associated with each respective application and on said access technology independent status information.

15 2. A system in accordance with claim 1, **characterized in that** the access selection adapters (22, 23) comprises a protocol (55) spanning the access networks (19, 20), the backbone network (21) and the access selector (26), thus allowing interoperation between an application (27) and an end terminal (25) connected to the backbone network and making the access adapters transparent to the applications.

20 3. A system in accordance with claim 1 or 2, **characterized in that** the radio access dependent information are provided by an access manager (32) in the access selection adapter (22, 23) and are signaled between the access selection adapter and its corresponding access network on the spanning layer (55).

25 4. A system in accordance with claim 3, **characterized in that** the radio access dependent information comprise any of the following attributes: signal strength, signal quality, delay, service precedence, reliability, mean throughput and peak throughput, bit error ratio, control load parameters, media description parameters, packet format information, expected delay bound, packet loss ratio, bit error rate (BER), packet handling priority, packet loss ratio (PLR), and combinations thereof.

5. A system in accordance with claim 4, **characterized in that** the radio access dependent information further comprises cost and/or available bandwidth.
6. A system in accordance with claim 4, **characterized in that** an access selection adapter comprises a QoS controller (30) for generating the status information by interacting with the corresponding application, an access manager (32) for handling the access to its associated radio access network, and for initiating and setting up a radio bearer therein, and a translator (31) for receiving as inputs said radio access dependent information access and map them on said access technology independent information (wireless hints).
- 10 7. A system in accordance with claim 2, **characterized in that** the protocol spanning the backbone network, the access networks, the access adaptors, the access selector, and the applications is the IPv4 or IPv6 protocol suit.
- 15 8. A system in accordance with claim 1, **characterized by** a database (28) connected to the user terminal and containing configuration data for the applications
9. A system in accordance with claim 1, **characterized in that** the access selector comprises link independent QoS related software processes (48) for access procedures.
10. A system in accordance with claim 9, **characterized in that** said QoS related 20 software processes comprise an NSIS (Next Step In IP Signaling) process for radio access independent QoS signaling, an layer 2-link status (L2-LS) process for radio access independent link status information and acquisition and an resource handling (RH) process for radio access independent resource handling.
- 25 11. A system in accordance with claim 10, **characterized in that** said QoS related software processes further comprise at least one or both of the following radio access independent processes: a radio access independent FHO (Fast Handover) process for handling of mobility, a CARD (Candidate Access Router) process for acquisition of candidate access routers.
- 30 12. A system in accordance with claim 1, **characterized in that** the access selector (26) resides in the user terminal (18) and is connected to the access adapters (22, 23).

13. A system in accordance with claim 1, **characterized in that** the access selector (26) resides in or is connected to the backbone network (21), and is connected to the access networks (19, 20).

14. A method of providing simultaneous access to a plurality of radio based access networks (19, 20) from a moving system (17) that comprises a user terminal (18) with a plurality of diverse applications (27), **characterized by**

5 - signaling a QoS profile, comprising QoS parameter values, which an application requires, to an access selector, at the start of said application

10 - signaling from each available radio access network via an individual access adapter (22, 23), which is associated with said available access network, to the access selector (26) radio access network dependent information as well as status information about that network's resources,

15 - executing an access selection algorithm (33; 48) which based on the QoS parameters signaled in the QoS profile and status identifies the access network that should be used for the application,

20 - communicating the access selection to the user terminal, and

25 - instructing the access adaptor of the selected access network to set up a radio bearer in its associated radio access network.

15. A method in accordance with claim 14 **characterized in that** the radio access dependent information and the status information are signaled from the access adaptors (22, 23) to the access selector (26) at time intervals and when there is a change in any of the QoS parameters associated with the access network.

16. A method in accordance with claim 15 **characterized in that** a change in a QoS parameter is signaled by a layer 2 trigger or an access technology trigger.

17. A method for scheduling the access to an access network (19, 20) from a mobile user terminal (18) **characterized in that**

20 - a service request and an QoS profile associated therewith are signaled from an application (27) to an access selection selector (26),

25 - that the access selector (26) compares information given in the QoS parameters contained in the QoS profile with status information received from

access networks that are available to the user terminal (18),

- that the service request is stored in the user terminal in case said comparison reveals there is no access network available that fulfils the QoS requirements,
- 5 - that the access selector monitors the status information received from available radio access networks, and
- repeats the comparison step and instructs the application to execute when the comparison indicates a radio access network is available that fulfils the QoS profile.